

The research program of the Center for Economic Studies (CES) produces a wide range of theoretical and empirical economic analyses that serve to improve the statistical programs of the U.S. Bureau of the Census. Many of these analyses take the form of CES research papers. The papers are intended to make the results of CES research available to economists and other interested parties in order to encourage discussion and obtain suggestions for revision before publication. The papers are unofficial and have not undergone the review accorded official Census Bureau publications. The opinions and conclusions expressed in the papers are those of the authors and do not necessarily represent those of the U.S. Bureau of the Census. Republication in whole or part must be cleared with the authors.

**PREFERENTIAL PROCUREMENT PROGRAMS DO NOT
NECESSARILY HELP MINORITY-OWNED BUSINESSES***

By

TIMOTHY BATES**

and

DARRELL WILLIAMS***
Census Fellow

CES 95-1 January 1995

All papers are screened to ensure that they do not disclose confidential information. Persons who wish to obtain a copy of the paper, submit comments about the paper, or obtain general information about the series should contact Sang V. Nguyen, Editor, Discussion Papers, Economic Planning and Coordination, Center for Economic Studies, Room 1587, FB 3, Bureau of the Census, Washington, DC 20233-6101, (301-457-1882) or INTERNET

address snguyen@info.census.gov.

Abstract

Some minority business enterprises (MBEs) benefit from their participation in government preferential procurement programs and some do not. A subset of minority vendors identified in this study behaves in ways suggesting sensitivity to penalties for violating minority business certification and procurement program regulations. These firms flourish in the absence of fraud penalties.

A different group of minority vendors selling to government benefits from an environment in which MBE certification is comprehensive, bonding and working capital assistance are available, and assistance is delivered by a staff dedicated to aiding potential and actual MBE vendors.

The preferential procurement program can serve as either a valuable economic development tool for fostering minority business development, or it can promote MBE front companies that pass on their procurement contracts to nonminority firms. Some governments choose to operate the former type of program; others opt for the latter.

KEYWORDS: small business assistance, minority-owned business

*Data summaries contained in this study were produced on-site at the Center for Economic Studies (CES), U.S. Bureau of the Census. CES does not assume responsibility for views expressed in this report. Research reported in this study was sponsored by the U.S. Department of Commerce Minority Business Development Agency. Further support from the Woodrow Wilson International Center for Scholars, where Timothy Bates worked as a research fellow during 1993-1994, facilitated completion of this article. The very substantial assistance of Margaret Simms and the staff of the Joint Center for Political and Economic Studies is gratefully acknowledged. Comments and suggestions from Franklin Lee, Richard Stevens, and anonymous referees provided further guidance to this study. Direct all correspondence to: Timothy Bates; College of Urban, Labor and Metropolitan Affairs; 3198 Faculty Administration Building; Wayne State University; Detroit, MI 48202.

**TIMOTHY BATES is Professor, College of Urban, Labor and Metropolitan Affairs, Wayne State University. His most recent book, Banking on Black Enterprise: The Potential of Emerging Firms for Revitalizing Urban Economics, was published by the Joint Center for Political and Economic Studies in 1993. His current research concerns self employment among Asian immigrants.

***DARRELL WILLIAMS is a Census Bureau Fellow and an Assistant Professor of Economics at the University of California, Los Angeles. His current research examines the causes and effects of alternative forms of business ownership.

I. INTRODUCTION

Minority business enterprises (MBEs) have historically been uninvolved in the contracting and procurement activities of government agencies and authorities. Atlanta Georgia, for example, was a city in 1973 where the majority of the inhabitants were African Americans. Yet black-owned firms received only one tenth of one percent of Atlanta's procurement business in that year. Atlanta was a pioneer in seeking to expand MBE presence in public procurement: during the first full year of existence for the City's MBE program, the minority share of contracting and procurement rose to 19.9 percent. By 1988, the MBE share reached 34.6 percent (Boston, 1992). Access to public contracts has encouraged creation and expansion of minority-owned businesses. Indeed, preferential procurement assistance has been the main type of government aid targeted to MBEs in the 1980s (Bates 1993b).

Many billions of procurement dollars are earmarked in the 1990s for minority firms at the state and federal, as well as the local level. Under one single preferential procurement program operated by the Federal Highway Administration (FHWA), states in 1992 awarded \$1.855 billion in procurement contracts to "disadvantaged" (largely minority) business enterprises (COSCD, A,

1993). Despite the dampening influence exerted by the U.S. Supreme Court in their Richmond v. Croson decision in 1989, preferential procurement programs targeting minorities are nearly universal in the nation's very large cities. Those lacking programs at the time of Croson have added preferential procurement efforts: New York City's program began in 1992, Memphis started up in 1993. Major states that suspended MBE preferential procurement programs after Croson - New York and New Jersey, for example - reinstated similar programs in 1993 (Joint Center for Political and Economic Studies, 1994; COSCDA, 1993).

This paper documents that nearly 12 percent of the MBEs operating nationwide sold goods and, or services to state/local government in 1987. A multibillion dollar market has clearly opened up: the MBE construction sector, for example, derived over half of its revenues outside of the minority community in 1987 (Bates and Grown, 1992). Employment in the impacted MBE sectors has soared; most of the employees are minorities (Bates, 1993a).

There is another side to the MBE success story in government procurement. In many areas of the country, the facade of statistical success in preferential procurement rests on a foundation of misinformation and fraud. According to the Baltimore County Grand Jury, "a great number of certified minority businesses have traded the opportunity to gain a foothold in the construction industry for the quick profit

available from selling the use of their MBE name to nonminority firms" (p. 4, 1992). MBE fraud in the government procurement realm comes in many varieties, but one common element is normally present: no legitimate MBE is performing a commercially useful function in fulfilling the procurement contract. In the process, jobs are not being created in the minority community and MBE development reflects, at best, the fee - say 2 percent of the contract amount - that the MBE front collects for permitting another firm to use its name.

The findings of this study demonstrate that some MBES benefit from their sales to government and some do not. Preferential procurement programs most commonly benefit the larger than average MBE. Few of the ghetto Mom and Pop retail stores or personal service operations are capable of serving government clients. Government procurement accrues naturally to MBES that function in the broader, nonghetto economy, particularly in wholesale, construction, business service, and other skill-intensive service industries. Yet, MBES most reliant upon government customers often suffer from this reliance. Involvement in government procurement encourages many small MBES to overextend themselves, and the result may be business failure. MBE preferential procurement programs are often designed and implemented with little thought given to the broader environment that shapes small business viability. Small, young MBES, for

example, are awarded large procurement contracts that they cannot handle. These circumstances encourage MBEs to operate as fronts.

The impact of preferential procurement depends quite heavily upon how government agencies are administering the applicable program. Many cities and states make no serious effort to certify that the minority vendors benefitting from their programs are really minority-owned and operated firms. Front company activities are not even illegal in some jurisdictions. A major finding of this study is that some minority vendors behave in ways suggesting sensitivity to penalties for violating minority business certification and procurement program regulations. These firms flourish in the absence of fraud penalties. A different group of MBEs selling to government benefits from an environment in which MBE certification is comprehensive, bonding and working capital assistance are available, and assistance is delivered by a staff dedicated to aiding potential and actual MBE vendors. These types of assistance promote success and survival among MBE vendors because they alleviate the barriers that have traditionally minimized minority business participation in government procurement.

II. ANALYSIS OF MBES SELLING TO STATE/LOCAL GOVERNMENT

This section's analyses are based upon nationwide samples of MBES operating in 1987, including 4421 firms that sold

goods/services to state/local government, and comparison groups of nonminority-owned small businesses. These data are drawn from the U.S. Bureau of the Census Characteristics of Business Owners (CBO) data base, which is described in Bates (1990) and Nucci (1992). The firms examined in this study are representative of the universe of small firms operating nationwide in 1987: all firms are further traced through late 1991 in order to identify the survivors from those that went out of business. CBO small firms that sold goods/services to state/local government in 1987 are described below:

	<u>MBE vendors</u>	<u>Nonminority vendors</u>
1987 total sales (mean)	\$ 163,063	\$ 359,437
% of firms having paid employees	42.7%	55.4%
% of firms still operating in late 1991	86.4%	88.5%

MBEs operating nationwide in 1987 reported mean sales of just over \$90,000 that year, and 78.4 percent of this overall MBE population was still in business in late 1991¹. Thus, the typical MBE selling to government is substantially larger than the average firm in the broader MBE universe. The same pattern typifies the nonminority firms: sales for all nonminorities in the CBO averaged \$182,000, about half the mean amount for government vendors².

The higher mean sales of MBEs selling to government, as well as their higher survival rates, suggest that they are an elite group relative to the broader MBE universe. The above average firm size and higher survival rates observed among MBEs selling to state/local government clients may suggest real benefits to participating businesses. Larger firm size is strongly associated with greater profitability as well as enhanced survival prospects (Evans, 1987; Bates, 1993a). An alternative hypothesis is that firms are successfully selling to government clients because they are the larger, more viable businesses.

From the standpoint of the sponsoring government units, exactly what are MBE - targeted preferential procurement programs designed to do? What is their purpose? This question was posed to administrators of preferential procurement programs in every state and every large city that had an active program underway in 1992 (Joint Center for Political and Economic Studies, 1994; COSCDA, 1993). The most common response was that preferential procurement was a tool for generating MBE growth and development. The stated purpose of the State of Maryland's Minority Business Enterprise Program typified many responses: the program's purpose is "to encourage and facilitate the growth and development of minority firms in Maryland through greater access to state contracts." (COSCDA, 1993). Another frequent justification for preferential procurement is captured in the stated purpose of Detroit's Sheltered Market Program: " to remedy

the present effects of past discrimination and disadvantage by giving MBEs a greater opportunity to participate in city contracts." A major purpose of this study is to examine how these broad program mandates actually translate into practice.

Do MBE preferential procurement programs benefit MBEs? This study tests statistically the hypothesis that selling to state/local government enhances MBE viability. Table one describes the variables utilized in statistical analyses throughout this study.

Table two's logistic regression analysis controls for firm and owner characteristics to test whether selling to government, other factors constant, enhances MBE survival prospects. The dependent variable in table two's logistic regression is whether or not the business that was operating in 1987 is still functioning in late 1991. Businesses still operating are active firms; those that have closed down are discontinued.

Table two's logistic regression demonstrates that sales to state/local government, other things equal, has no strong systematic relationship to MBE survival through late 1991. MBEs with strong survival prospects are the better capitalized firms disproportionately and they are quite likely to have owners who work full-time in the business; the most highly educated owner group is positively associated with survival and the youngest firm group (formed in 1987) contains a disproportionate number of MBEs that have gone out of business by 1991. All of these

findings replicate conclusions of previous analyses of minority business longevity (Bates, 1993a; Bates, 1994). The logistic regression finding that the government vendor group is no more likely than other MBEs to remain in operation was something of a surprise. When table two was replicated for nonminority firms only, the local government sales variable was positive and statistically highly significant: while the nonminority small firms that sell to state/local government are much more likely to remain in business than other firms, this positive relationship to firm survival prospect is entirely lacking for MBEs (Bates, 1993b).

The fact that MBEs selling to state/local government were neither more likely nor less likely to remain in business than other MBEs may reflect the very small sales levels to government clients typifying many of these vendors. Thus far, the analysis has considered only the presence or absence of sales to government. The figures summarized below describe the degree to which minority and nonminority firms rely upon government clients:

<u>Sales to state/local government as a % of 1987 total sales</u>	<u>MBE</u>	<u>Nonminority</u>
under 25%	65.0%	80.6%
25 - 50%	23.7%	14.0%
50 - 75%	5.6%	1.5%
75%+	<u>5.7%</u>	<u>3.9%</u>

100.0%

100.0%

In other words, 65 percent of the MBEs actually selling goods/services to state/local government derived less than 25 percent of their 1987 gross revenues from this source. Only 11.3 percent of the MBEs (and 5.4 percent of the nonminority vendors) relied on state/local government for 50 percent or more of their sales revenues. Clearly, most small firms with government clients rely on other markets for the majority of their sales revenues. Firm viability impacts may be quite different among MBE groups that exhibit larger and smaller reliance upon state/local government clients as revenue sources.

The MBE vendor group with the highest government mean sales was construction: they averaged \$83,619 from state/local government clients in 1987. Corresponding government sales by MBE service firms, in contrast, were only \$25,236, on average. Yet, when table two's logistic analysis was replicated for MBE construction firms only, the local government sales variable emerged as a negative and highly statistically significant determinant of firm survival (Bates 1993b). Among MBE construction firms, selling to government is clearly associated with going out of business, other things equal.

The next step entailed narrowing the focus of this study to MBEs operating in major metropolitan areas only. In order to test the hypothesis that the nature of the preferential procurement

program determines whether or not MBE vendors benefit from participation, a collective effort was undertaken with the Joint Center for Political and Economic Studies (JCPES) of Washington, D.C. to collect detailed profiles of MBE preferential procurement programs operated by over 30 large cities³. Useful data on program specifics were generated for 28 large cities located in 26 metropolitan areas nationwide. In these 26 metropolitan areas, 1085 MBEs described in the CBO data base were found to have sold goods/services to state/local government. Examination of these 1085 MBE vendors revealed that firm closure rates were highest among those relying most heavily upon sales to state/local government. Illustrative summary statistics are presented below:

	MBE vendors-under 25% sales to <u>state/local government</u>	MBE vendors-25% plus sales to <u>state/local government</u>
1989 total sales (mean)	\$215,449	\$121,498
1987 sales to state/local government (mean)	\$20,173	\$70,814
% of firms shut down by late 1991	17.9%	29.3%

It is noteworthy that the nation's more ambitious and innovative MBE preferential procurement programs operate in cities like Atlanta that have presiding black mayors. Evidence from case studies indicates that black mayors place a high

priority on municipal contracting to MBEs. Promoting black-owned businesses was ranked as "very important" by 86 percent of black elected officials (Jaynes and Williams, 1989). Bates and Williams (1993) argue that the discretion afforded mayors over local government procurement contracts provides them the opportunity to reward constituents and that businesses owned by constituents are likely beneficiaries. They demonstrate statistically that in industries where government contracting is common, black-owned firms in cities with black mayors have higher total revenues and lower rates of failure compared to businesses in cities where the mayor is not black. These findings were, in fact, the major impetus for the present analysis of preferential procurement programs.

The analytic innovation in this section is that actual characteristics of the MBE assistance programs operating in the applicable central cities are introduced into the analysis. Particular attention was paid to types of assistance that were widespread in cities with presiding black mayors, in light of the findings of greater black business vibrancy by Bates and Williams (1993). If the black mayor cities are indeed more successful than others in aiding MBEs, how do they do it? Overwhelmingly, preferential procurement, packaged with complementary assistance, was the mode of operation for aiding MBEs in cities with presiding black mayors. Specific policies (upon which data have

been collected by JCPES) hypothesized to help MBEs are spelled out below:

1. MBE procurement is handled by a staff whose specific responsibility is to assist potential and actual MBE vendors.
2. Working capital assistance is provided by the applicable local government to successful MBE contract recipients. Forms of this assistance may include:
 - a. short-term loans;
 - b. quick pay provisions: the MBE is guaranteed payment within 30 days of billing the government client;
 - c. direct payment of minority subcontractors: the government client does not rely upon the project prime contractor to pay the minority subs.
3. On small and medium size procurement contracts that have traditionally required that the vendor be bonded, bonding is waived for MBEs, or bonding is provided by a local government source.
4. Large contracts are downsized to increase their accessibility to MBEs. MBEs attempting to break into government procurement are often smaller than their established competitors. The result is that many contracts are too large for them; they simply do not have the capacity to accept the business. Breaking down large contracts into smaller components is expected to alleviate this MBE accessibility problem.

5. MBEs eligible to receive assistance are subjected to a rigorous certification process that seeks to weed out front firms and sham operations. The assisted firms are therefore very likely to be genuine, functioning minority-owned small businesses.
6. Significant penalties are imposed upon MBEs that circumvent program regulations through such actions as fronting for nonminority firms in procurement contract fulfillment.
7. Procurement departments attempt to see that contracts awarded to minorities result in significant value added accruing to the MBE community. For example, agencies are not permitted to meet their set-aside goals by purchasing goods from MBE brokers that carry no inventory and do not service the applicable products.

The seven variables created from JCPES survey data that correspond to these seven hypotheses are formally defined below:

Certification: for MBEs located in areas where government vendors are subjected to rigorous MBE certification processes - including on-site inspections of firm operations - certification = 1; otherwise, certification = 0.

Staff: for MBEs located in areas where the applicable central city employs a staff specifically to assist potential and actual MBE vendors, staff = 1; otherwise, staff = 0.

Pay: for MBEs located in areas where the applicable central city provides working capital assistance to minority vendors, pay = 1; otherwise, pay = 0.

Bonding: for MBEs located in areas where the applicable central city provides bonding assistance to minority vendors, bonding = 1; otherwise, bonding = 0.

Penalty: for MBEs located in areas where the applicable central city imposes significant penalties upon minority vendors violating certification or procurement program regulations, penalty = 1; otherwise, penalty = 0. Note that mere decertification of errant minority vendors is not considered to constitute a significant penalty.

Break: for MBEs located in areas where the applicable central city downsizes large procurement contracts to make them more accessible to minority vendors, break = 1; otherwise, break = 0.

Broker: for MBEs located in areas where the applicable central city prohibits MBE brokers, broker = 1; otherwise, broker = 0.

For these seven variables describing operational aspects of preferential procurement programs, means are presented below for two

groups of MBEs located in the applicable 26 large metropolitan areas. The percentage figures presented below represent proportions of all MBEs selling to government that were subject

to the seven procurement policies.

	MBE	
vendors - under	MBE vendors - 25%	
	25% sales to state/ <u>local government</u>	plus sales to <u>state/local gov't</u>
Certification	66.4%	56.9%
Staff	35.7%	42.4%
Pay	63.7%	63.6%
Bonding	30.2%	24.4%
Penalty	54.5%	47.2%
Break	95.1%	95.8%
Broker	36.3%	31.1%

It is noteworthy that the MBE vendor group having the low mean sales and the large contracts - those relying upon state/local government for 25 percent or more of their total revenues - is overrepresented in the urban areas where MBE certification procedures are not rigorous.

Table two's logistic analysis of MBE firm survival is repeated in table three for the sample of 1085 vendors that sold goods/services to state/local governments in the 26 large metropolitan areas under consideration. The new hypotheses being tested here are that the seven operational policies for assisting MBE vendors described above are expected to contribute to the longevity of the minority firms that do, in fact, sell to state/local governments. One of the seven policies - breaking down large contracts to make them more accessible to MBEs - could

not be investigated econometrically because of insufficient sample variance⁴.

Two sets of logistic regressions are presented in table three: MBE survival is analyzed separately for 1) vendors deriving under 25 percent of their sales from state/local government, and 2) firms relying upon this source for 25 percent or more of their sales revenues. MBE vendors in the under 25 percent grouping make up 67 percent of the applicable firms selling to state/local government in the 26 metropolitan areas under consideration. The table three analysis of the MBE vendors with under 25 percent of revenues from government clients identifies the preferential procurement program practices that actually do promote the longevity of MBE vendors:

1. The presence of a rigorous certification process is positively associated with heightened MBE vendor survival prospects, and the presence of a staff assigned to assist minority firms produces the same result.
2. MBE vendors located in areas where bonding requirements are routinely waived for procurement contracts (or bonding is actually provided by the locality) are much more likely to remain in business, other things equal, than firms in other areas.
3. MBE vendors located in areas where the local government provides working capital assistance to contract

recipients are more likely to remain in operation, other factors constant, than firms in other areas.

Why do these sorts of government practices heighten the survival prospects of MBE vendors? Previous studies indicate that MBEs are much more likely than nonminority small businesses to suffer from undercapitalization and liquidity problems (Bates, 1993a). Weak capitalization and limited access to short-term debt sources such as commercial bank loans make it difficult for MBEs to finance current operations, much less substantial growth (Ando, 1988; Bates, 1993a; Bates, 1993c). While government contracts are a potential source of firm growth, such business can also exacerbate illiquidity problems for MBEs. Government assistance that addresses this problem by providing working capital assistance to MBE contract recipients alleviates one of the major barriers to expanded MBE involvement in government procurement. Alleviation of this barrier increases the survival prospects of MBEs selling to government.

While bonding requirements are also thought to constitute a major barrier to expanded MBE involvement in government procurement, quantitative evidence documenting this phenomenon has been lacking to date. In the absence of hard data, the idea that bonding requirements serve as a barrier to potential MBE vendors - in private as well as public sector work - has been based upon anecdotal evidence. Table three's documentation that bonding assistance enhances the survival prospects of MBE vendors

certainly constitutes hard quantitative evidence that bonding requirements are indeed a barrier to the development of the minority business community. Bonding assistance is most often provided to MBE vendors in the form of bonding waivers, and it is disproportionately beneficial to construction firms, construction being the area where bonding requirements are widespread. Less frequently, localities actually write the bonds for MBE vendors; this policy circumvents the problem of the unwillingness of the surety industry to write bonds for MBEs.

When table three's logistic analysis is replicated solely for MBEs deriving 25 percent or more of their revenues from state/local government sales, a troubling issue arises. The results indicate that no forms of government assistance have the statistical power to delineate firm survivors from closures. The inference is that aid in such forms as working capital and bonding assistance do not benefit the MBEs that rely most heavily upon government for their sales revenues. Other contrasts in the findings are noteworthy:

1. College graduate owners were much more likely to see their firms remain in business in the under 25 percent group, but this relationship was weak and statistically insignificant among MBEs in the 25 percent plus grouping.

2. Well capitalized firms were more likely to survive among the under 25 percent MBEs, but not in the 25 percent plus vendor group.
3. Very young firms (1987 formations) were more likely to shut down than more established firms, but this relationship was over twice as strong for the MBEs most heavily reliant upon government clients.

How is it that owner education, firm capitalization, and government assistance in bonding and working capital can have a very substantial impact on the survival chances of one MBE vendor group and none on the other group? Consider the hypothesis that front firms may be present in the 25 percent plus MBE vendor group:

1. MBE owner human capital has no necessary relationship to firm survival in cases where the one running the firm is not the MBE owner.
2. MBE firm capitalization has no necessary relationship to firm survival in cases where the financial capital that is financing the production of goods/services for government clients belongs to another firm - the one that is actually filling the procurement contract rather than the one that is nominally in charge.
3. MBE front firms are often put together for the sole purpose of securing and completing a specific government contract. In such cases, the MBE would have

no obvious reason for remaining in business once the applicable contract was completed. This may help to explain why the MBE vendors most reliant on government clients were 63.7 percent more likely to be out of business by 1991, relative to the other MBE vendors. Further, firms put together solely to secure a specific government contract (front firms) will largely show up in the data as very young firms. In fact, 47.9 percent of the MBEs having 25 percent or more of revenues from government had been in business for two or fewer years, versus 35.2 percent of the other MBEs. Among the very youngest firms (1987 startups), finally, the 25 percent plus firms were more than twice as likely as the MBEs less reliant upon government to be out of business by 1991.

These facts, by themselves, do not provide a solid basis for quantifying the presence of front firms, but they certainly are consistent with the hypothesis that front firms are present. MBEs with varying owner human capital and firm financial capital traits behave in certain predictable ways: the stronger firms do better than the weaker firms (Bates, 1993a). When these sorts of predictable relationships somehow no longer characterize the behavior of a MBE subgroup, one is prone to suspect that some overriding force - such as the front firm phenomenon - is suppressing normal firm operations. How can we measure the

presence or absence of that overriding force? Table four addresses this issue. In this table, an OLS regression equation is used to estimate the log of 1987 total sales revenues for the MBEs deriving 25 percent or more of their sales revenues from state and local government. Table four explanatory variables are the same as those used in table three's logistic regression analysis. The table four finding that is particularly noteworthy concerns the impact of the penalty variable, which is related to significantly (statistically) lower MBE sales in cities with stringent penalties for violations of preferential procurement program and MBE certification regulations. In other words, the MBEs most heavily reliant upon government (table four) achieve significantly higher average sales, other things equal, in cities where front company abuses are not punished with financial penalties and the possibility of jail time for errant owners. These MBEs indeed behave collectively as though front companies are operating in their midst. When table four's OLS regression exercise was replicated solely for MBEs deriving less than 25 percent of their revenues from state/local government, the penalty variable was not a significant sales level determinant. The policy implication of this finding is straightforward: MBE front company abuses can be held down by penalizing such activity heavily.

III. CONCLUSION

Some MBEs benefit from their sales to state/local government and some do not. Some MBEs are aided by the assistance offered by the 26 large urban governments described above and some are not. On balance, the MBEs most reliant upon sales to state/local government appear to be set back by this dependency. The fact that these firms behave in ways suggesting sensitivity to penalties for violating MBE certification and procurement regulations is instructive. These MBEs - dubbed the small firms with the big contracts - appear disproportionately in the areas where substantive fraud penalties are lacking. Their sales are boosted by an absence of fraud penalties, other things equal. Their behavior is consistent, in important ways, with the hypothesized behavior of MBE front firms. This is the bad news.

The good news is that MBEs relying upon state/local government for under 25 percent of their revenues clearly seem to benefit from their relationship to their government customers. They benefit particularly from an environment in which MBE certification is comprehensive, bonding and working capital assistance are available, and government staffers are present for the specific purpose of aiding MBE potential and actual vendors.

The evidence presented here, in conjunction with the evidence of other investigations, suggests that fraud in MBE preferential procurement programs is present in some - perhaps many - areas of the U.S. (Baltimore County Grand Jury, 1992). Indianapolis, for example, conducted extensive field audits of

MBEs holding city contracts in 1992: 30 percent of the city's certified minority vendors had their certifications revoked as a result of this investigation (Joint Center for Political and Economic Studies, 1994). While the facade of statistical success typifying some preferential procurement programs rests on a foundation of front companies, other governments have already demonstrated how preferential procurement can be used as a tool for MBE assistance. First, support provided for legitimate MBEs in areas such as bonding and working capital assistance alleviates barriers to broader MBE participation in government procurement. Second, the proliferation of MBE front companies can be detected by on-site compliance review. "Only in the field will investigators discover the lengths to which unscrupulous companies will go to cover up the true nature of their operations" (Baltimore County Grand Jury, 1992, p. 2). Third, contracts with MBEs (including prime contractors dealing with MBE subs where applicable) must include written certifications that the MBE will actually perform the work on that contract. These certifications must be backed up with penalties for noncompliance, including prosecution under the fraud provisions of the MBE statute. Finally, penalties for fraud must be substantive. In many areas of the country, MBE front companies are subject to nothing more than decertification if they are found to be in violation of the relevant MBE procurement statute.

Motivations for acting as front companies are diverse, and it is superficial to assume that this type of fraud merely reflects firms' desire for a quick buck, as opposed to the desire by the minority owner to build a substantive firm. MBEs can be pushed to front company roles because of structural deficiencies in preferential procurement programs. The all-too-common case of the overly small MBE holding the overly large contract illustrates this point clearly: in the absence of complementary assistance, some MBEs simply lack the capacity to handle large contracts. If the small MBE can be assured of prompt payment for services delivered to government clients, then the issue of capacity to perform is much less likely to arise. If the small MBE, in contrast, buys the requisite materials and hires the additional workers necessary to produce a greatly expanded output for a government client, that firm runs the very real risk of being choked by a liquidity crisis if the client does not pay the MBE vendor for four or five months. In this case, selling the contract to a nonminority firm generates a quick profit, while actually producing to fill contract requirements means that the MBE risks going out of business. Such circumstances can make the front company option an intelligent choice for the aspiring MBE vendor.

The preferential procurement program can serve as either a valuable economic development tool for fostering minority business development, or it can promote MBE front companies that

pass their procurement contracts to nonminority firms. When governments contract with young, inexperienced MBE vendors, pay their bills slowly, fail to penalize front company abuses, and the like, they are, de facto, opting to encourage the sorts of abuses that destroy the economic development potential of preferential procurement programs. They are promoting programmatic fraud.

ENDNOTES

1. Mean overall MBE sales reported here are higher than those reported in applicable Census Bureau publications. This is because I have deleted those having sales in 1987 of under \$5,000. The Census Bureau includes everyone reporting self-employment gross revenues of \$500 or more as a "small business". Most, in fact, that report annual sales under \$5,000 are employees first and foremost - people with peripheral self-employment revenues. A college professor receiving a \$500 honorarium is a small business in the eyes of Census; this professor would have to generate at least \$5,000 in self-employment revenues to meet the cutoff point used to define small business in this study.
2. "Weighted" firm statistics are reported throughout this paper, meaning that the numbers cited are representative of all small firms operating in 1987 in the U.S. The group of 4421 MBEs selling to state/local government, for example, represents 72,596 MBE vendors nationwide.
3. Detailed descriptions of all of the relevant MBE assistance programs appear in, Joint Center for Political and Economic Studies (1994).
4. Because over 95 percent of the MBE vendors were located in areas practicing contract downsizing, fewer than ten MBEs that shut down their firms by 1991 were found to be operating in urban areas where contract downsizing was not practiced.

5. The 67 percent figure is based upon weighted sample size.

REFERENCES

Ando, F. (1988). Capital issues and minority-owned business. The Review of Black Political Economy, 16, 77-109.

Baltimore County Grand Jury. (1992). Special report concerning the Maryland minority business enterprise program. (unpublished).

Bates, T. (1990). The characteristics of business owners data base. The Journal of Human Resources, 25, 752-756.

Bates, T. (1993a). Banking on black enterprise. Washington, D.C.: Joint Center for Political and Economic Studies.

Bates, T. (1993b). Assessment of state and local government minority business development programs; report to the U.S. Department of Commerce Minority Business Development Agency.

Bates, T. (1993c). Success and survival among U.S. small businesses owned by Asian immigrants. U.S. Bureau of the Census Center for Economic Studies discussion paper.

Bates, T. (1994). Social resources generated by group support networks may be not be beneficial to Asian immigrant-owned small businesses. Social Forces, 72, 671-689.

Bates, T. and Grown C. (1992). Commercial bank lending practices and the development of black-owned construction companies. Journal of Urban Affairs, 14, 25-41.

Bates, T. and Williams, D. (1993). Racial politics: does it pay? Social Science Quarterly, 74, 507-522.

Boston, T.D. (1992). Are Atlanta's MBE programs socially beneficial? (unpublished).

COSCEA. (1993). National directory of state minority business enterprise programs; report to the U.S. Department of Commerce Minority Business Development Agency.

Evans, D. (1987). The relationship between firm size, growth, and age: estimates for 100 manufacturing industries. The Journal of Industrial Economics, 35, 567-582.

Jaynes, G. and Williams, R. (1989). A common destiny: blacks and American society. Washington, D.C.: National Academy Press.

Joint Center for Political and Economic Studies. (1994). Assessment of minority business development programs; report to the U.S. Department of Commerce Minority Business Development Agency.

Nucci, A. (1992). The characteristics of business owners data base. U.S. Bureau of the Census Center for Economic Studies discussion paper.

Regional Alliance for Small Contractors and the New York Building Conference. (1993). Creating growth opportunities for minority and women-owned construction firms. (unpublished).

TABLE ONE: Definitions of Variables Used in Statistical Analysis

A. Explanatory variables:

Education 2: for owners completing four years of high school, education 2 = 1; otherwise education 2 = 0.

Education 3: for owners completing at least one but less than four years of college (and those not attaining a bachelor's degree), education 3 = 1; otherwise education 3 = 0.

Education 4: for owners awarded a bachelor's degree, education 4 = 1; otherwise education 4 = 0.

Education 5: for owners who attended graduate school, education 5 = 1; otherwise education 5 = 0.

Management exper: for those working in a managerial capacity prior to owning the business they owned in 1987, management exper = 1; otherwise, management exper = 0.

Asian: for Asians (male and female), this variable = 1; otherwise, Asian = 0.

Black: for African Americans, this variable = 1; otherwise, Black = 0.

Latino: for Latinos (including whites), this variable = 1; otherwise, Latino = 0.

Wed: for married owners living with their spouse, wed = 1; otherwise, wed = 0.

TABLE ONE (cont'd)

Labor input: number of hours during the 1987 calendar year spent by the owner working in the relevant small business, divided by 100.

Time 84: if the business was started or ownership was acquired during 1984 or 1985, then time 84 = 1; otherwise, time 84 = 0.

Time 86: If the business was started or ownership was acquired during 1986, then time 86 = 1; otherwise, time 86 = 0.

Time 87: If the business was started or ownership was acquired during 1987, then time 87 = 1; otherwise, time 87 = 0.

Construction, Manufacture, Transportation, Wholesale, Retail, Fire (finance, insurance, and real estate), and Service: these self-explanatory binary variables identify firm industry affiliation.

Capital: the log of the sum of debt and equity capital used to start or become owner of the business.

Leverage: the ratio of debt to equity capital invested in the firm at the point of entry.

Local gov't sales: for firms that sold goods/services to state or local government in 1987, local gov't sales = 1; otherwise local gov't sales = 0.

TABLE ONE (cont'd)

B. Dependent variables:

Firm survival: measures whether or not the business that as operating in 1987 is still functioning in late 1991; businesses still operating (irrespective of changes in ownership) are active firms (survival = 1), and those that have shut down are discontinued (survival = 0).

Firm size: the log of the dollar amount of total firm revenues generated in 1987.

Table Two: Logistic Regression: Explaining Firm Survival over the 1987-1991 Period: Minority-Owned Businesses

<u>Variable</u>	Regression coefficient (standard error in <u>parentheses</u>)	<u>Variable</u> <u>mean</u>
Constant	.157 (.173)	--
Education 2	.027 (.052)	.222
Education 3	.049 (.054)	.208
Education 4	.076 (.059)	.190
Education 5	.403* (.068)	.164
Management exper.	.154* (.044)	.261
Asian	.052 (.100)	.339
Black	.140 (.101)	.285
Latino	.113 (.099)	.345
Labor input	.022* (.001)	20.726
Capital	.090* (.015)	9.059
Leverage	-.023* (.003)	2.438
Wed	.125* (.043)	.806
Time 84	-.417* (.051)	.171

TABLE TWO (cont'd)

<u>Variable</u>	Regression coefficient (standard error in <u>parentheses</u>)	Variable <u>mean</u>
Time 86	-.837* (.051)	.148
Time 87	-1.085* (.045)	.216
Local gov't sales	-.016 (.056)	.119
Construction	.283* (.088)	.080
Manufacture	.264* (.125)	.028
Transportation	-.484* (.082)	.078
Wholesale	-.107 (.116)	.029
Retail	-.241* (.069)	.242
Fire	.016 (.097)	.054
Service	.260* (.067)	.411

n 20,326

-2 Log L (Chi square) 20,456.3 (1573.8)

*Statistically significant at the .05 level

Table Three: Logistic Regression: Explaining MBE Survival over the 1987-1991 Period for Firms that Sold to State/Local Government Clients*

A. MBEs that derived under 25 percent of their sales from government			B. MBEs deriving 25 percent or more of their sales from government		
Variable	Regression coefficient (standard error in parentheses)	Variable mean	Regression coefficient (standard error in parentheses)	Variable mean	
Constant	3.145** (1.275)	--	2.675 (4.423)	--	
Education 2	2.346** (.483)	.152	.611 (.725)	.256	
Education 3	1.529** (.376)	.320	.474 (.654)	.240	
Education 4	2.730** (.487)	.155	.335 (.699)	.258	
Education 5	3.050** (.499)	.217	1.078 (.742)	.114	
Mgmt. exper.	.159 (.239)	.304	-1.784** (.422)	.424	
Asian	.202 (.678)	.389	-1.616 (4.102)	.323	
Black	.576 (.725)	.240	-1.795 (4.125)	.329	
Latino	.082 (.685)	.311	-1.827 (4.112)	.345	
Labor input	.010 (.011)	24.160	.042** (.017)	23.676	
Capital	.212** (.105)	9.320	.163 (.166)	9.095	

TABLE THREE (cont'd)

<u>Variable</u>	<u>Regression coefficient (standard error in parentheses)</u>	<u>Variable mean</u>	<u>Regression coefficient (standard error in parentheses)</u>	<u>Variable mean</u>
Leverage	.025 (.027)	2.091	-.073** (.035)	3.781
Wed	-1.312** (.392)	.817	.409 (.498)	.818
Time 84	.339 (.382)	.170	3.161** (1.325)	.088
Time 86	-1.022** (.364)	.140	.473 (.569)	.216
Time 87	-1.082** (.323)	.212	-2.734** (.470)	.263
Certification	.531** (.285)	.664	.773 (.496)	.569
Staff	.638** (.285)	.357	-.443 (.500)	.424
Pay	.795** (.277)	.637	-.129 (.446)	.636
Bonding	.956** (.347)	.302	-.382 (.547)	.244
Penalty	-.081 (.280)	.545	-.323 (.457)	.472
Broker	.115 (.312)	.363	-.526 (.494)	.311
Construction	.667 (.816)	.040	***	
Manufacture	1.266 (.828)	.046	***	

TABLE THREE (cont'd)

<u>Variable</u>	<u>Regression coefficient (standard error in parentheses)</u>	<u>Variable mean</u>	<u>Regression coefficient (standard error in parentheses)</u>	<u>Variable mean</u>
Transportation	.343 (.618)	.075	***	
Wholesale	1.688 (.941)	.033	***	
Retail	.422 (.513)	.334	***	
Fire	.883 (.802)	.028	***	
Service	.846 (.499)	.391	***	
n		744	311	
-2 Log L (Chi square)	518.2 (170.2)		256 (170.8)	

* firms under consideration in table three are all located in 26 large metropolitan areas

** statistically significant at the .05 level

***industry variables were dropped due to small sample size

TABLE FOUR: OLS Regression: Explaining Firm 1987 Sales Revenues: Minority Vendors Defined as Deriving 25 Percent or more of their Sales from Government (26 Large Metropolitan Areas)

Variable	Regression coefficient (standard error in parentheses)	Variable mean
Constant	8.673* (1.155)	--
Education 2	.189 (.223)	.256
Education 3	.161 (.206)	.240
Education 4	.585* (.233)	.258
Education 5	1.123* (.246)	.114
Management Exper.	-.078 (.144)	.424
Asian	-.810 (.948)	.323
Black	-.635 (.949)	.329
Latino	-.851 (.947)	.345
Labor input	.020* (.006)	23.676
Capital	.274* (.055)	9.095
Wed	-.443* (.162)	.818
Time 84	-.333 (.240)	.088

Time 86	-.061 (.195)	.216
---------	-----------------	------

TABLE FOUR (cont'd)

Variable	Regression coefficient (standard error in parentheses)	Variable mean
Time 87	-.783* (.161)	.263
Certification	-.133 (.159)	.569
Staff	-.104 (.153)	.424
Pay	-.007 (.137)	.636
Bonding	.407* (.185)	.244
Penalty	-.326* (.155)	.472
Broker	.150 (.169)	.311
Construction	.850* (.281)	.086
Manufacture	.945 (.536)	.013
Transportatio n	-.146 (.315)	.083
Wholesale	.916* (.433)	.022
Retail	.433 (.249)	.174
Fire	-1.423* (.342)	.049

n	311
R ²	.388
F	8.0

CENTER FOR ECONOMIC STUDIES DISCUSSION PAPERS

- 39

- Working Paper Series. Journal of Finance and Economics, Volume 27, pp. 165-194, (1990). (53 pages, \$13.25)
- 89-6 "Firm Entry and Post-Entry Performance in the U.S. Chemical Industries," by Timothy Dunne, Mark J. Roberts, and Larry Samuelson, 7/89. Journal of Law and Economics, (1989). (49 pages, \$12.25)
- 89-7 "Price Dispersion in U.S. Manufacturing," by Thomas A. Abbott, III, 10/89. (16 pages, \$4.00)
- 89-8 "Multifactor Productivity and Sources of Growth in Chinese Industry: 1980-1985," by Robert H. McGuckin, Sang V. Nguyen, Jeffrey R. Taylor, and Charles A. Waite, 10/89. Presented at the winter meetings of the American Statistical Association, 1/90. An Industrial Census of China, Xu Gang, ed., Beijing, People's Republic of China: The Secretariat of the International Seminar of Analysis on China's 1985 Industrial Census Results, pp. 113-138, (1990). (35 pages, \$8.75)
- 89-9 "The Characteristics of Business Owners (CBO) Database," by Alfred Nucci, 10/89. (28 pages, \$7.00)
- 90-1 "Longitudinal Economic Data at the Census Bureau: A New Database Yields Fresh Insights on Some Old Issues," by Robert H. McGuckin, 1/90. Proceedings of the Statistics Canada Symposium on Analysis of Data in Time, pp. 243-253, (1990). (33 pages, \$8.25)
- 90-2 "An Analysis of Small Business Size and Rate of Discontinuance," by Timothy Bates and Alfred Nucci, 1/90. Journal of Small Business Management, pp. 1-7, (1990). (14 pages, \$3.50)
- 90-3 "Export Performance and State Industrial Growth," by Rodney A. Erickson, 1/90. Economic Geography, Volume 65, Number 4, pp. 280-292, (October 1989). (31 pages, \$7.75)
- 90-4 "Gross Job Creation, Gross Job Destruction, and Employment Reallocation," by Steven J. Davis and John Haltiwanger, 2/90. Forthcoming, Quarterly Journal of Economics. (52 pages, \$13.00)
- 90-5 "Estimating a Multivariate Arma Model with Mixed-Frequency Data: An Application to Forecasting U.S. GNP at Monthly Intervals," by Peter A. Zadrozny, 6/90. (58 pages, \$14.50)
- 90-6 "Wages and the Risk of Plant Closings," by Timothy Dunne and Mark J. Roberts, 7/90. American Statistical Association Proceedings of the Business and Economics Statistics Section, pp. 275-280, (1989). (31 pages, \$7.75)
- 90-7 "The Classification of Manufacturing Industries: An Input-Based Clustering of Activity," by Thomas A. Abbott, III and Stephen H. Andrews, 8/90. Proceedings, Census Bureau Annual Research Conference, pp. 26-45, (1990). (47 pages, \$11.75)
- 90-8 "The Extent and Nature of Establishment Level Diversification in Sixteen U.S. Manufacturing Industries," by Mary L. Streitwieser, 8/90. Journal of Law and Economics, Part 2, pp. 503-534 (1991). (39 pages, \$9.75)

- 90-9 "Self-Employment Trends Among Mexican Americans," by Timothy Bates, 8/90. Quarterly Review of Economics and Business, (1990). (26 pages, \$6.50)
- 90-10 "Gross Job Creation and Destruction: Microeconomic Evidence and Macroeconomic Implications," by Steven J. Davis and John Haltiwanger, 9/90. NBER Macroeconomics Annual, MIT Press: Cambridge, MA, (1990). (51 pages, \$12.75)
- 90-11 "Returns to Scale in Small and Large U.S. Manufacturing Establishments," by Sang V. Nguyen and Arnold P. Reznick, 9/90. Small Business Economics, Number 3, pp. 197-214, (1991). (35 pages, \$8.75)
- 90-12 "The Relationships Among Acquiring and Acquired Firms' Product Lines," by Robert H. McGuckin, Sang V. Nguyen and Stephen H. Andrews, 9/90. Journal of Law and Economics, Part 2, pp. 477-502 (October 1991). (45 pages, \$11.25)
- 90-13 "The Determinants of U.S. Intra-Industry Trade," by F.M. Scherer and Keun Huh, 12/90. International High-Technology Competition, Cambridge, Massachusetts: Harvard University Press (1992). (19 pages, \$4.75)
- 91-1 "Published Versus Sample Statistics from the ASM: Implications for the LRD," by Steven J. Davis, John Haltiwanger and Scott Schuh, 1/91. Proceedings of the American Statistical Association Business and Economics Section, (1990). (38 pages, \$9.50)
- 91-2 "R&D Reactions to High-Technology Import Competition," by F.M. Scherer and Keun Huh, 3/91. Forthcoming in Review of Economics and Statistics. (37 pages, \$9.25)
- 91-3 "Measuring Total Factor Productivity, Technical Change and the Rate of Returns to Research and Development," by Sang V. Nguyen and Edward C. Kokkelenberg, 5/91. Journal of Productivity Analysis, Number 2, pp. 269-282, (1992). (25 pages, \$6.25)
- 91-4 "Decomposing Technical Change," by Michael Gort, Byong-Hyong Bahk, and Richard A. Wall, 5/91. Southern Economic Journal, Volume 60, Number 1, pp. 220-235. (40 pages, \$10.00)
- 91-5 "The Structure of Production Technology, Productivity and Aggregation Effects," by Phoebus J. Dhrymes, 8/91. Proceedings, 1990 Annual Research Conference as "The Structure of Production Technology: Evidence from the LED Sample 1." (62 pages, \$15.50)
- 91-6 "Technical Inefficiency and Productive Decline in the U.S. Interstate Natural Gas Pipeline Industry Under the Natural Gas Policy Act," by Robin C. Sickles and Mary L. Streitwieser, 10/91. Journal of Productivity Analysis, Volume 3, pp. 119-133, June 1992. (27 pages, \$6.75)
- 91-7 "Technology Usage in U.S. Manufacturing Industries: New Evidence from the Survey of Manufacturing Technology," by Timothy Dunne, 11/91. RAND Journal of Economics. (31 pages, \$7.75)

- 91-8 "Multiple Classification Systems for Economic Data: Can a Thousand Flowers Bloom? And Should They?" by Robert H. McGuckin, 12/91. Proceedings of the 1991 Conference on the Classification of Economic Activity, 1991. (36 pages, \$9.00)
- 91-9 "Commercial Bank Lending Practices and the Development of Black-Owned Construction Companies," by Caren Grown and Timothy Bates, 12/91. Journal of Urban Affairs, pp. 25-41, (1992). (31 pages, \$7.75)
- 91-10 "The Influence of Location on Productivity: Manufacturing Technology in Rural and Urban Areas," by Sheila A. Martin, Richard McHugh, and Stanley R. Johnson, 12/91. (33 pages, \$8.25)
- 92-1 "Productivity Dynamics: U.S. Manufacturing Plants, 1972-1986," by Eric J. Bartelsman and Phoebus J. Dhrymes, 2/92. (51 pages, \$12.75)
- 92-2 "The Dynamics of Productivity in the Telecommunications Equipment Industry," by G. Steven Olley and Ariel Pakes, 2/92. (56 pages, \$14.00)
- 92-3 "Price Dispersion in U.S. Manufacturing: Implications for the Aggregation of Products and Firms," by Thomas A. Abbott, III, 3/92. (36 pages, \$9.00)
- 92-4 "Estimating Capital Efficiency Schedules Within Production Functions," by Mark E. Doms, 5/92. Forthcoming in Economic Inquiry. (26 pages, \$6.50)
- 92-5 "Costs, Demand, and Imperfect Competition as Determinants of Plant-Level Output Prices," by Timothy Dunne and Mark J. Roberts, 6/92. Empirical Studies in Industrial Organization, pp. 13-24, (1992). B.B. Audretsch and J.J. Siegfried, eds., Clover Publishers. (29 pages, \$7.25)
- 92-6 "On the Turnover of Business Firms and Business Managers," by Thomas J. Holmes and James A. Schmitz, Jr., 7/92. (49 pages, \$12.25)
- 92-7 "The Characteristics of Business Owners Database," by Alfred Nucci, 8/92. (82 pages, \$20.50)
- 92-8 "Analytic Use of Economic Microdata: A Model for Researcher Access with Confidentiality Protection," by Robert H. McGuckin, 8/92. Proceedings, International Seminar on Statistical Confidentiality, 1992. (23 pages, \$5.75)
- 92-9 "The Structure of Technology, Substitution, and Productivity in the Interstate Natural Gas Transmission Industry under the NGPA of 1978," by Robin C. Sickles and Mary L. Streitwieser, 8/92. (39 pages, \$9.75)
- 92-10 "The Time-Series Pattern of Firm Growth in Two Industries," by Kenneth R. Troske, 9/92. (37 pages, \$9.25)
- 92-11 "Managerial Tenure, Business Age and Small Business Dynamics," by Thomas J. Holmes and James A. Schmitz, Jr., 9/92. (47 pages, \$11.75)

- 92-12 "The Aggregate Implications of Machine Replacement: Theory and Evidence," by Russell Cooper and John Haltiwanger, 10/92. The American Economic Review, Volume 83, Number 3, pp. 360-382, (June 1993). (41 pages, \$10.25)
- 92-13 "Gender Segregation in Small Firms," by William J. Carrington and Kenneth R. Troske, 10/92. Revised, May 1993. Forthcoming in Journal of Human Resources. (45 pages, \$11.25)
- 92-14 "Manufacturing Establishments Reclassified Into New Industries: The Effect of Survey Design Rules," by Robert H. McGuckin and Suzanne Peck, 11/92. Journal of Economic and Social Measurement, Volume 1, Number 2 (1993). (25 pages, \$6.25)
- 92-15 "Wages, Employer Size-Wage Premia and Employment Structure: Their Relationship to Advanced-Technology Usage at U.S. Manufacturing Establishments," by Timothy Dunne and James A. Schmitz, Jr., 12/92. Forthcoming in Economica. (36 pages, \$9.00)
- 92-16 "Decomposing Learning by Doing in New Plants," by Byong-Hyong Bahk and Michael Gort, 12/92. Journal of Political Economy, Volume 101, Number 4, August 1993. (33 pages, \$8.25)
- 93-1 "Academic Science, Industrial R&D, and the Growth of Inputs," by James D. Adams and Leo Sveikauskas, 1/93. (48 pages, \$12.00)
- 93-2 "Science, R&D, and Invention Potential Recharge: U.S. Evidence," by James D. Adams, 1/93. Forthcoming in American Economic Review Papers and Proceedings. (13 pages, \$3.25)
- 93-3 "LBOs, Debt and R&D Intensity," by William F. Long and David J. Ravenscraft, 2/93. The Deal Decade, 1993, Margaret M. Blair, ed., Washington, D.C.: The Brookings Institution. (38 pages, \$9.50)
- 93-4 "Learning By Doing and Competition in the Early Rayon Industry," Ronald S. Jarmin, 2/93. Forthcoming in RAND Journal of Economics. (32 pages, \$8.00)
- 93-5 "Inter Fuel Substitution and Energy Technology Heterogeneity in U.S. Manufacturing," by Mark E. Doms, 3/93. (48 pages, \$12.00)
- 93-6 "Environmental Regulation and Manufacturing Productivity at the Plant Level," by Wayne B. Gray and Ronald J. Shadbegian, 3/93. (29 pages, \$7.25)
- 93-7 "Asymmetric Learning Spillovers," by Ronald S. Jarmin, 4/93. (22 pages, \$5.50)
- 93-8 "Evidence on IO Technology Assumptions from the Longitudinal Research Database," by Joe Matthey, 5/93. (26 pages, \$6.50)
- 93-9 "Energy Intensity, Electricity Consumption, and Advanced Manufacturing Technology Usage," by Mark E. Doms and Timothy Dunne, 7/93. (24 pages, \$6.00)
- 93-10 "The Importance of Establishment Data in Economic Research," by Robert H. McGuckin, 8/93. Proceedings of the International Conference on Establishment Surveys, 1993, and forthcoming, Journal of Economics and Business Statistics. (20 pages, \$5.00)

- 93-11 "Determinants of Survival and Profitability Among Asian Immigrant-Owned Small Businesses," by Timothy Bates, 8/93. Social Forces, Volume 72, Number 3, pp. 671-689. (39 pages, \$9.75)
- 93-12 "Construction of Regional Input-Output Tables from Establishment-Level Microdata: Illinois, 1982," by Eduardo Martins, 8/93. (53 pages, \$13.25)
- 93-13 "The Long-Run Demand for Labor: Estimates from Census Establishment Data," by Timothy Dunne and Mark J. Roberts, 9/93. (35 pages, \$8.75)
- 93-14 "Testing the Advantages of Using Product Level Data to Create Linkages Across Industrial Coding Systems," by SuZanne Peck, 10/93. (30 pages, \$7.50)
- 93-15 "On Productivity and Plant Ownership Change: New Evidence from the LRD," by Robert H. McGuckin and Sang V. Nguyen, 11/93. (42 pages, \$10.50) Forthcoming in The Rand Journal of Economics.
- 93-16 "The Financial Performance of Whole Company LBOs," by William F. Long and David J. Ravenscraft, 11/93. (34 pages, \$8.50)
- 94-1 "The Choice of Input-Output Table Embedded in Regional Econometric Input-Output Models," by Philip R. Israilevich, R. Mahidara, and Geoffrey J.D. Hewings, 1/94. (22 pages, \$5.50)
- 94-2 "A Comparison of Job Creation and Job Destruction in Canada and the United States," by John Baldwin, Timothy Dunne, and John Haltiwanger, 5/94. (32 pages, \$8.00)
- 94-3 "Firms Started as Franchises Have Lower Survival Rates than Independent Small Business Startups," by Timothy Bates 5/94. (27 pages, \$6.75)
- 94-4 "Downsizing and Productivity Growth: Myth or Reality?" by Martin Neil Baily, Eric J. Bartelsman and John Haltiwanger, 5/94. (34 pages, \$8.50)
- 94-5 "Recent Twists of the Wage Structure and Technology Diffusion" by James D. Adams, 6/94. (61 pages, \$15.25)
- 94-6 "Regulation and Firm Size, Foreign-Based Company Market Presence, Merger Choice in the U.S. Pesticide Industry," by Michael Ollinger and Jorge Fernandez-Cornejo, 6/94. (33 pages, \$8.25).
- 94-7 "The Span of the Effect of R&D in the Firm and Industry," by James D. Adams and Adam B. Jaffe, 6/94. (37 pages, \$9.25).
- 94-8 "Cross Sectional Variation in Toxic Waste Releases from the U.S. Chemical Industry," by Mary L. Streitwieser, 8/94. (44 pages, \$11.00).
- 94-9 "A Guide to R & D Data at the Center for Economic Studies U.S. Bureau of the Census," by James D. Adams and SuZanne Peck, 8/94. (64 pages, \$16.00).
- 94-10 "Evidence on the Employer Size-Wage Premium From Worker-Establishment Matched Data," by Kenneth R. Troske, 8/94. (52 pages \$13.00).

- 94-11 "Capital Adjustment Patterns in Manufacturing Plants," by Mark Doms and Timothy Dunne, 8/94. (40 pages \$10.00).
- 94-12 "Primary Versus Secondary Production Techniques in U.S. Manufacturing," by Joe Matthey, 10/94. (24 pages \$6.00).
- 94-13 "Exporters, Skill Upgrading and the Wage Gap," by Andrew B. Bernard and J. Bradford Jensen, 11/94. (40 pages \$10.00).
- 94-14 "Pollution Abatement Costs, Regulation and Plant-Level Productivity", by Wayne B. Gray and Ronald J. Shadbegian, 12/94. (27 pages \$6.75).
- 95-1 "Preferential Procurement Programs Do Not Necessarily Help Minority-Owned Businesses", by Timothy Bates and Darrell Williams, 1/95. (45 pages \$11.25).

CES Discussion Papers are available in a variety of subscription formats: (INTERNET, WordPerfect 5.1 Diskette, and Yearly Series single paper copy). Ordering information is found on the attached *CES Discussion Paper Subscription Form*. In addition, papers are sold individually for the amount specified after each title.

For ordering specific papers write to: Bureau of the Census
Economic Planning and Coordination
Center for Economic Studies
Room 1587-3
Washington, D.C. 20233-6101

Attn: Tracy Crosby

Make check or money order payable to: Commerce, Census
No credit cards accepted.

CES Discussion Paper Subscription Form

Please send me the following subscription to the **CES Discussion Papers:**

- ☐ Yearly subscription to the **CES Discussion Paper** Series on the INTERNET, free of charge.
- ☐ Yearly subscription to the **CES Discussion Paper** Series in single paper copy for a fee of \$125.00 per year.
- ☐ Yearly subscription to the **CES Discussion Paper** Series on computer diskette in WordPerfect 5.1 for a fee of \$60.00 per year.
- Diskette Size ☐ 3½" ☐ 5¼"
- ☐ CES Annual Report only, free of charge.

Subscriber address:

NAME _____

ADDRESS _____

Phone () _____

FAX () _____

INTERNET ADDRESS _____

My payment in the amount of \$_____ is enclosed.

Make check or money order payable to: Commerce, Census
No credit cards accepted.

Please send the order form to:

Bureau of the Census
Economic Planning and Coordination
Center for Economic Studies

Room 1587-3
Washington D.C. 20233-6101

Attn: Tracy Crosby